

# Tips for Maintenance of Small Drinking Water Systems

This tip sheet provides suggestions to help owners and operators of small drinking water systems properly maintain wells, surface water intake areas, and treatment equipment. It covers regular maintenance, spring start-up, and times of increased water usage. Following these tips can help you prevent contamination of your drinking water.

**NOTE: ALL water treatment equipment should be serviced in accordance with manufacturer specifications.** Guidance regarding maintenance schedules may also be contained in your drinking water system's Engineering Evaluation Report or other documentation provided by your equipment supplier.

## Well/Surface Water Intake Areas Safety and Security:

- Is your well properly capped and sealed? Check for casing cracks or openings that may allow surface water, insects, or foreign materials to enter the well. Ensure well cap vents are intact.
- Check the ground around the well. Soil should be mounded to direct surface water away from the well/well casing (no pooling).
- Do not use pesticides, store chemicals, spread manure, or allow animals in close proximity to the well.
- Consider super chlorinating the well and flushing lines if the system has been dormant, or an increase in seasonal use is anticipated.
- If you have a surface water source, you should ensure the intake area is protected by cribbing and intakes are free of debris. In certain areas, zebra mussels may cause a restriction in the raw water flow to your system. Proper intake depth, fluctuating lake levels, possible ice damage, and raw water quality should all be taken into account.
- During spring snowmelt, seasonal changes, rain and storm events, it is a good idea to monitor systems more closely to ensure that any changes to raw water quality do not impact the treated water provided to consumers.

## Ultraviolet (UV):

- **Have you changed your UV bulb?** UV bulbs should be changed annually (or as recommended by the manufacturer after a certain number of hours of use, or more frequently depending on raw water characteristics) to ensure proper disinfection capability.
- **Is your quartz sleeve cleaned on a regular schedule?** To ensure proper UV disinfection the quartz sleeve should be inspected and cleaned if it becomes cloudy. A good rule of thumb is monthly, but varies depending on raw water characteristics. Some units may be automatic – check your manufacturer's instructions.
- **Is your UV alarm and/or auto shutoff ON and working?** The alarm and/or auto shutoff should be inspected and tested on a regular basis.
- **If your sensor triggers a solenoid valve, ensure the solenoid valve is set in the auto position.** Test its operation at the intervals specified by the manufacturer.

## Cartridge Filtration:

- **Have you changed your cartridge filter?** Filter cartridges should be changed based on the pressure differential recommended by the manufacturer (the frequency may vary depending on raw water characteristics) to ensure proper particle filtration and better UV disinfection performance.
- **Do you have the right cartridge size for your system?** Generally a five (5) micron or a one (1) micron filter is used ahead of the UV system depending on the source raw water turbidity characteristics.

You can contact your local municipal water treatment plant operators if you have general treatment questions, would like to tour a municipal water treatment facility, or would like to find out about additional training opportunities that may be available through the municipality. Contact your local Ministry of the Environment office or local health unit if you have specific questions about the regulatory requirements of your drinking water system. **For regulatory information and guidance material about drinking water, please visit Drinking Water Ontario at [www.ontario.ca/drinkingwater](http://www.ontario.ca/drinkingwater) or contact the ministry's Public Information Centre (PIC) at 1-800-565-4923 or [picemail.moe@ontario.ca](mailto:picemail.moe@ontario.ca).**

## Chlorination:

- **Is your chlorine fresh?** Less than four months old is a good rule of thumb. Chlorine loses its strength as it ages and should be refreshed as necessary. Use only NSF/60 certified or other food-grade chlorine supplies.
- Make sure you have enough testing chemicals/testing pouches on hand and check for expiry dates.
- **Inspect your chlorine dosing pump and lines; common problems can include build up of crystallization on the pump, splits in plastic tubing feed lines, or clogged injectors.**
  - Plastic tubing feed line splits or loose line connections can allow air bubbles causing false chlorine readings, or can allow the chlorine feed to the system to be disrupted.
  - Corrosive crystallization around chlorine feed pumps and equipment should be cleaned regularly as part of your drinking water system's regular preventative maintenance program. This should include the injection point (which can easily become clogged), foot valve, and any check valves.
  - Injection pump stroke settings can be tricky. The mid-range setting is usually optimal to provide a satisfactory chlorine residual; if in doubt check with the equipment manufacturer or a professional.
- It is advisable to calibrate your chlorine analyzer annually, or at a frequency recommended by the manufacturer, whichever is less.

## Water Softeners (applicable to most groundwater sources that are hard):

- To ensure smooth functioning, softeners should regenerate at least once a week. If a salt crust has formed in the brine tank, remove the crust, clean the tank, and rinse well.
- If your raw water contains iron, check for iron deposits in the resin bed, and consider cleaning the softener with an iron removal product.
- Resin tank injectors can become plugged with "dirty" salt. If plugged, shut off the softener bypass plug, run a manual regeneration, and clean the injector and injector screen.

Sodium (from softeners or naturally occurring) in drinking water accounts for a fractional amount of the sodium we ingest in our daily diets. The aesthetic objective for sodium in drinking water is 200 mg/L. If concentrations exceed twenty (20) mg/L there is an increased potential risk for persons on a sodium restricted diet. If your sodium concentration exceeds twenty (20) mg/L, consumers of your water should be informed, and the local Medical Officer of Health notified so this information can be passed on to local physicians.

## System Flushing:

- **Consider super chlorinating and flushing the system at start up or during low use periods.**
- At dead end branches and/or areas of low water use within the distribution system, **regular flushing helps to maintain an adequate chlorine residual level and to turn over stagnant water.**
- Larger drinking water systems with varying seasonal usage should consider a regular flushing program that may include the installation of a flushing tap for identified "dead end" areas.